

**REMARKS**

Claims 1, 6-11 and 14-17 are pending. No new matter has been added by way of the present amendments. For instance, newly added claims 14 and 15 are supported by the present specification at page 10, lines 8-9. Newly added claim 16 is supported by the present specification at page 10, lines 20-21. Lastly, new added claim 17 is supported by the present specification at page 11, lines 2-3. Accordingly, no new matter has been added.

**Request for Suspension of Action and Entry of Amendments**

When the Request for Continued Examination (RCE) was filed on June 27, 2006 it was accompanied by a Request for Suspension of Action for three months (along with the requisite fee). However, on July 26, 2006 the Examiner issued a Final Office Action. The issuance of this Final Office Action was in error.

The correct procedure should have been to suspend prosecution until September 27, 2006, thus allowing Applicants the opportunity to provide additional amendments, arguments and/or evidence. Applicants' representative contacted the Examiner to discuss this issue. The Examiner agreed that no Office Action should have been issued on July 26, 2006. Therefore, the Examiner stated that no response to the Office Action of July 26, 2006 was required, and rather, Applicants should simply provide the appropriate submission by September 27, 2006 and the Examiner would correctly consider this submission.

To this end, the current outstanding Finality is improper and Applicants are free to submit amendments to the claims. Therefore, Applicants have presented new claims 14-17. These claims present new issues never before considered by the Examiner. Therefore, even though

there is technically an outstanding final Office Action, this Office Action is in error and the Examiner must enter these amendments. Moreover, due to the new claims raising new issues, if the Examiner chooses to issue a subsequent Office Action, rather than a Notice of Allowability, that Office Action cannot be made final.

In view of the following remarks, Applicants respectfully request that the Examiner withdraw all rejections and allow the currently pending claims.

**Issues under 35 U.S.C. §103(a)**

In the Office Action of August 9, 2005, the Examiner rejected claims 1 and 6-11 under 35 U.S.C. §103(a) as being obvious over the combination of EP 104930 (hereinafter referred to as EP '930), Matsumoto et al., USP 5,958,668 (hereinafter referred to as Matsumoto '668) and Hayashi et al., USP 4,273,723 (hereinafter referred to as Hayashi '723).

The Examiner also rejected claims 1 and 6-11 under 35 U.S.C. §103(a) as being obvious over the combination of EP 0962812 (hereinafter referred to as EP '812), Matsumoto '668 and Hayashi '723.

Applicants respectfully traverse each of the above rejections.

**The Present Invention and Its Advantages**

The present invention relates to a heat-developable image recording material comprising: a support; a photosensitive silver halide; a reducing agent for a silver ion; a binder; and a non-photosensitive organic silver salt grain, wherein the non-photosensitive organic silver salt grain has: 1) substantially no silver stearate; 2) a length/width ratio of 1 to 9; 3) an aspect ratio

of 1.1 to 30; an equivalent-sphere diameter of 0.05 to 1  $\mu\text{m}$ ; 5) a content of silver behenate that is 97 to 100 mol% per mol of the non-photosensitive organic silver salt; and 6) a content of silver arachidate that is 3 mol% or less per mol of the non-photosensitive organic silver salt.

Applicants draw the Examiner's attention to the specific requirements for the non-photosensitive organic silver salt grain as required by claim 1 of the present invention. In particular, each of the above six requirements must be satisfied by the non-photosensitive organic silver salt grain. Of particular relevance is the fact that the non-photosensitive organic silver salt grain must have substantially no silver stearate, must have a content of silver behenate of 97 to 100 mol % per mol of the non-photosensitive organic silver salt, and must have a content of silver arachidate of 3 mol % or less per mol of the non-photosensitive organic silver salt.

#### **Distinctions Between the Present Invention and the Cited Art**

The two main references cited by the Examiner are EP '930 and EP '812. The Examiner has supplemented the disclosure of these references with that of Matsumoto '668 and Hayashi '723. However, Applicants respectfully submit that these references, whether viewed individually, or in combination, cannot support a *prima facie* case of obviousness. For instance, Applicants respectfully submit that the prior art fails as a whole to suggest or disclose the subject matter of independent claim 1 of the present invention.

The prior art fails to suggest or disclose the composition of the present organic silver salt.

The prior art fails to suggest or disclose the composition of the presently claimed organic silver salt. In particular, the prior art fails to suggest or disclose the present non-photosensitive organic silver salt grain which has 1) substantially no silver stearate, 2) a content of silver behenate that is 97 to 100 mol % per mol of the non-photosensitive organic silver salt, and 3) a content of silver arachidate that is 3 mol % or less per mol of the non-photosensitive organic silver salt. This distinction alone is sufficient to support the patentability of the present claims.

To this end, Applicants draw the Examiner's attention to the disclosures of the two primary references of EP '930 and EP '812. A review of these references reveals a lack suggestion or disclosure of at least the above three requirements.

First, the above requirements are directly influenced by the silver behenate mentioned in EP '930 and EP '812. That is, the presence of the silver behenate (in particular the behenic acid) in EP '930 and EP '812 precludes the references from obtaining grains meeting the claimed requirements, such as containing substantially no silver stearate. The behenic acid utilized in these references is produced from fatty acids derived from plants, naturally containing as impurities fatty acids with a chain length different from behenic acid, such as stearic acid and arachidic acid. Thus, behenic acid always contains silver stearate and/or silver arachidate impurities in higher amounts if it is not subjected to a further purification process. The presence of the impurities in behenic acid is confirmed by the composition of commercially available product, such as the two products called "behenic acid" provided in the Internet catalogue of Thornley Company, submitted on July 13, 2004, October 31, 2003, and February 9, 2006. According to the specifications these products consist of a mixture of 70 and 90 mol% of behenic

acid and 30 and 10 mol% of arachidic acid, respectively. Thus, the commercially available products do not contain behenic acid in an amount of 97 to 100 mol%, silver arachidate in an amount of 3 mol% or less and substantially no silver stearate so that further purification is required to obtain a fatty acid composition suitable for the preparation of organic silver salt grains according to the present invention.

In fact, there is no discussion in EP '930 or EP '812 that reducing the content of silver stearate and silver arachidate in the organic silver salts is desirable. In contrast thereto, silver stearate and silver arachidate are cited as preferred organic salts. Thus, it must be assumed that conventional (commercially available) ingredients were employed and thus EP '930 and EP '812 cannot meet the claimed limitations as discussed above.

Second, according to the examples of EP '930 ([0138]-[0140]), the organic silver salts are prepared from mixtures of silver behenate, arachidic acid and stearic acid. The behenic acid content in the organic silver salt powders A and B of EP '930 is 42 mol% and 85 mol%, the content of silver arachidate 34 mol% and 12 mol%, and the content of silver stearate is 24 mol% and 3 mol%, respectively. Thus, EP '930 does not disclose a preferred amount of substantially no silver stearate, 3 mol% or less for the amount of silver arachidate, and 97 to 100 mol% for the amount of silver behenate in the organic silver salts as presently claimed.

Third, EP '812 describes the preparation of fatty acid silver salts by reacting silver with sodium behenate ([0221]). The behenic acid used in the production of the organic silver salts of EP '812 (trade name Edenor C22-85R, [0270]) has a content of behenic acid of 88 mol%, a content of stearic acid of 2 mol% and a content of arachidic acid of 5.7 mol%. Therefore, the behenic silver salt grains of EP '812 do not comply with the definition of the organic silver salt

grains recited in claim 1 of the present application having a content of silver behenate in the range of 97 to 100 mol%, substantially no silver stearate, and 3 mol% or less of silver arachidate.

The above discussion alone is sufficient to prove that the present heat-developable image recording material, having non-photosensitive organic silver salt grains which have substantially no silver stearate, have a content of silver behenate that is 97 to 100 mol% and a content of silver arachidate which is 3 mol% or less, are not suggested or disclosed by EP '930 or EP '812. Moreover, the other references of Matsumoto '668 and Hayashi '723 fail to cure these deficiencies. Also, the amounts of silver behenate used in Example 1 of Hayashi '723 have been misinterpreted by the Examiner as discussed below. Therefore, there exists no *prima facie* case of obviousness. However, additional distinctions exist.

According to the present invention, the amounts silver behenate in the composition of the organic silver salt provide excellent results. Additionally, the low amounts of silver arachidate and silver stearate, which facilitate the formation of needle-like shapes, also provide excellent results.

In the Advisory Action dated March 1, 2006, the Examiner discusses results obtained by the cited references as well as results obtained by the present invention. Applicants take this opportunity to point out that the amounts of silver behenate in the composition of the present organic silver salt provide excellent results. Additionally, the low amounts of silver arachidate and silver stearate, which facilitate the formation of needle-like shapes, also provide excellent results.

The Examiner asserts in the Advisory Action, that the content of silver behenate of "98.1%" in Example 1 (column 6) of Hayashi '723. However, this content of "98.1%" is not the silver behenate content per total organic silver salt, but rather the yield of the obtained silver

behenate per silver behenate amount used in the reaction. Thus, the Examiner's assertion is incorrect and must be corrected.

The Examiner has stated in the Advisory Action that a person of skill in the art would have expected that the silver stearate and silver arachidate would provide a negative effect on the photothermographic material because they contain a low number of carbon atoms. Applicants comment as follows:

The melting point of a fatty acid having 12, 14 and 16 carbon atoms is 44°C, 58°C and 63.5°C, respectively. The melting point of a fatty acid having 18 carbon atoms (stearic acid) is 71.5°C. Image preservability depends on the melting of an organic silver salt, thus it may hypothetically be obvious for a person skilled in the art that the presence of a fatty acid 16 carbon atoms or less has a negative effect on the effect of the present invention (image preservability at 60°C.). However, it cannot be expected by a person skilled in the art that a stearic acid having a melting point of 71.5°C, would have a negative effect on the image preservability at 60°C) (the difference between the melting point and test temperature is 11.5°C), and thus "substantially no silver stearate" is important to the present invention and cannot simply be ignored. The detailed explanation is followed.

As a reason that a silver stearate has a negative effect, an aspect ratio of organic silver salt increases (becomes a needle-like shape) by the existence of silver stearate, whereby the organic silver salt becomes easy to break down. The present invention has found that in fact the preservability deteriorates thereby. The present invention uses an organic silver salt having a relatively low aspect ratio (e.g., 1.1 to 15). In order to achieve the aspect ratio, a content of silver behenate of 97 to 100 mol%, a content of silver arachidate of 3 mol% or less and

substantially no silver stearate are essential, whereby the present invention has achieved the necessary preservability. Thus, the present invention includes a previously unknown combination of elements. Among the organic silver salt dispersions in the Table of the present application, organic silver salt dispersions D, J and N are within the scope of the present invention, and the heat-developable image recording materials using these dispersions have exhibited an extremely excellent image preservability (“0”), compared to the other materials.

In order to clarify the effect of the present invention, attached is a Declaration pursuant to 37 C.F.R. §1.132.

**Declaration under 37 C.F.R. §1.132**

The attached Declaration reveals that the composition of organic silver salt within the scope of the present invention leads to an achievement of low aspect ratio and excellent image preservability. In addition, from a comparison between the results of the Organic Silver Salts X and Z, it was found that even a small amount of stearic acid content leads to a negative result. That is, the image preservability becomes drastically large, thus, becoming a problem for practical applications. The fact that the stearic acid content contributes so much to the image preservability of heat-developable photosensitive materials was previously unknown and is a surprising new knowledge in the art.

Therefore, even if the Examiner has hypothetically established a *prima facie* case of obviousness, a point not conceded by Applicants, the unexpectedly superior results according to the present invention rebut such a hypothetical case of obviousness. For instance, the attached Declaration pursuant to 37 C.F.R. §1.132 provides evidence proving the unexpectedly superior



results according to the present invention with respect to low aspect ratio and image preservability. Reconsideration and withdrawal of the outstanding rejections are therefore respectfully requested.


### CONCLUSION

If the Examiner has any questions or comments, please contact Craig A. McRobbie, Registration No 42,874 at the offices of Birch, Stewart, Kolasch & Birch, LLP.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to our Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. § 1.16 or under § 1.17; particularly, extension of time fees.

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Respectfully submitted,

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